Claims 1-6 and 8 stand rejected under 35 USC §102(b) as being anticipated by the U.S. Patent No. 5,272,756 to Tanaka et al. Claims 11-15 stand rejected under 35 USC §103(a) as being unpatentable over Tanaka et al. in view of the U.S. Patent No. 4,691,358 to Bradford.

The provisional allowance of claims 7, 9, 10 and 16-19 is noted with appreciation. However, the rejection of applicants' remaining claims in this application is respectfully traversed since it is believed that claim 1, as presently presented, distinguishes patentably over both Tanaka et al. and Bradford.

Applicants' invention concerns a system for processing and displaying audio signals that appear in a standard, but relatively complicated format established by Dolby Laboratories and known as "Surround Sound". In this format, which is described, for example, in the U.S. Patent No. 4,799,260 to Mandell et al, the audio signals are designated as "left total" (L_t) and "right total" (R_t) signals. As taught in the '260 patent, the signals L_t and R_t are defined by the equations 1 and 2 set forth on page 25 of this application based on original signals L_o, C and S. Since the signals L_t and R_t each include out-of-polarity

information from the opposite channel, a conventional two dimensional (X/Y) display would yield no useful information.

The patent to Tanaka et al. receives convention left channel and right channel stereophonic audio signals and provides a visual representation of the phase correlation between these signals. Nowhere in the entire patent disclosure is there any mention of "Surround Sound" or the standard left total (L_t) and right total (R_t) audio signals. Consequently, there is no possibility that system of Tanaka et al. could operate in the same manner, and produce the same screen display as applicants' system, as defined in claim 1.

The principal distinction between applicants' system and other devices is the way in which applicants' system utilizes all four quadrants of the X/Y display to reveal different aspects of the Lt and Rt program. Other known devices present screen displays which may be marginally useful for observing interchannel phase relationships in conventional Stereo program material, but become essentially meaningless when fed Dolby Pro Logic or Pro Logic II encoded program material. This can be clearly seen in the Tanaka patent, Figs. 2c and 2d, and in the Bradford patent Figs. 3c-3f. In both examples, out-of-phase information (which is

an essential element in both Stereo and Surround encoded program material) is combined with L and R components utilizing all four quadrants (Tanaka), and only 2 quadrants in the Bradford example. This is confusing enough when observing conventional Stereo material, and even less valuable when observing Surround encoded material.

By contrast, the signal processing incorporated in applicants' system disassembles Lt and Rt into four distinct signals which are recombined in such a manner that all Lt information is directed to the -X axis display, and all Rt information to the +X axis. In-phase information is directed to the +Y axis above the baseline, and any truly out-of-phase information is directed to the -Y axis below the baseline. The resulting display will immediately reveal the ongoing interchannel L/R balance (a level difference of .5 dB is clearly visible), and also immediately reveal if the program material is Mono (+Y) or Stereo with little out-of-phase information (very little -Y activity), or Surround encoded, in which case there will be significant +Y and -Y activity. The position of the baseline is offset in the -Y direction to give more screen area to display in-phase information.

Additionally, if a Mono signal exists as Lt only, the display will present a -X vector on the baseline. A Mono Rt signal results in a +X vector on the baseline. In Bradford, Figs. 3A and 3B show that a similar capability exists, but clearly makes use of less than half the screen area.

In contrast to Tanaka Figs. 11a and 11B, a Mono signal in both Lt and Rt will produce a +Y vector above the baseline with the angle dependent on the Lt/Rt level balance. The same signal with a polarity inversion in either channel will result in a -Y vector below the baseline, again with the angle dependent on the Lt/Rt level balance. The position of the baseline is offset in the -Y direction to give more screen area to display in-phase information.

The applicants' signal processing also compresses the dynamic range of the Lt and Rt signal levels to permit a screen display with a range of about 40 dB, as opposed to a conventional X/Y display whose dynamic range is defined by the ratio of the spot width to the area of the screen. A typical 8 X 10 CRT display has a useable dynamic range of barely 23 dB.

In conclusion, since applicants' system, as defined in the independent claim 1 of this application, is not only configured differently, but also functions differently from

the devices disclosed by Tanaka et al. and Bradford, claim 1, and consequently all the remaining claims dependent thereon, is believed to distinguish patentably over these references.

This application is therefore believed to be in condition for immediate allowance. A formal Notice of Allowance is accordingly solicited.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Services as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

JUNE 11, 2007
MILDE & HOFFBERG, LLP

By _____

Date JUNE 11, 2007